

? I 345. There can remain no doubt that the
 property of in-
 1 ducing combination, which can thus be
 conferred upon masses
 r of platina and other metals by connecting
 them with the poles
 9 of the battery, or by cleansing processes
 either of a mechanical
 i or chemical nature, is the same as that
 which was discovered
 * by Dobereiner,¹ in 1823, to belong in so
 eminent a degree to
 ? spongy platina, and which was afterwards so
 well experimented
 i upon and illustrated by MM. Dulong and
 Thenard,² in 1823.
 '* • The latter philosophers even quote
 experiments in which a
 3 very fine platina wire, which had been coiled
 up and digested
 in nitric, sulphuric, or muriatic acid,
 e became ignited when put
 into a jet of hydrogen gas.³ This effect I can
 now produce at
 f pleasure with either wires or plates by the
 processes described
 " (3°6, 337, 341); and by using a smaller plate
 cut so that it
 e shall rest against the glass by a few points,
 and yet allow the
 J: water to flow off (fig. 19), the loss of heat is
 less, the metal is
 assimilated somewhat to the spongy
 state, and the probability
 Q of failure almost entirely removed.

Fig. 19.

346. M. Dobereiner refers the effect entirely to
 an electric
 action. He considers the platina and hydrogen
 as forming a
 voltaic element of the ordinary kind, in which
 the hydrogen,
 I being very highly positive, represents the
 zinc of the usual
 •d I arrangement, and like it, therefore,
 attracts oxygen and combines
 te j with it.⁴
 *e i 347. In the two excellent experimental
 papers by MM. Dulong
 a I and Thenard,⁵ those philosophers show that
 elevation of tempera-
 te | ture favours the action, but does not
 alter its character; Sir
 -T Humphry Davy's incandescent platina
 wire being the same
 | phenomenon with Dobereiner's spongy
 platina. They show
 h. that all metals have this power in a
 greater or smaller degree,
 ie and that it is even possessed by such
 bodies as charcoal,
 >y pumice, porcelain, glass, rock-crystal,
 etc., when their tempera-
 n | tures are raised; and that another of
 Davy's effects, in which
 is | oxygen and hydrogen had combined
 slowly together at a heat
 ><jr I below ignition, was really dependent
 upon the property of the

s

^a *Annales de Chimie*, torn. xxiv. p. 93.

^a *Ibid.* torn. xxiii. p. 440; torn. xxiv. p. 380.

³ *Ibid.*,

torn. xxiv. p. 383.
he * *Ibid.* torn. xxiv. pp. 94, 95. Also *Biblioth&que*
Universelle, torn. xxiv.,
he j p. 54.
| * *Ibid.* torn, xxiii. p. 440; torn. xxiv. p. 380.